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Pang et al.

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(54) **FORMULA CALCULATION METHOD AND ELECTRONIC DEVICE THEREFOR**

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G06F 15/02 (2006.01)

(52) **U.S. Cl.**
CPC ***G06F 15/02*** (2013.01)

(58) **Field of Classification Search**
CPC G06F 15/02
See application file for complete search history.

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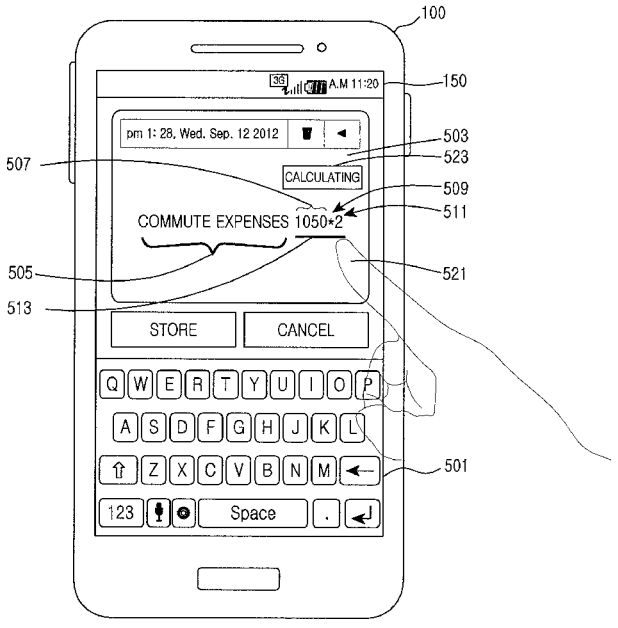
Primary Examiner — Chuong D Ngo

(57) **ABSTRACT**

A method for calculating a formula included in text in an electronic device includes detecting the text, detecting at least one formula included in the detected text, calculating at least the one formula, and displaying the calculated result. An apparatus for implementing the method includes at least one processor, at least one memory, and at least one program which is stored in at least the one memory and is configured to be executable by at least the one processor. The at least one program detects input text, detects at least one formula included in the detected text, calculates at least the one formula, and displays the calculated result.

18 Claims, 19 Drawing Sheets



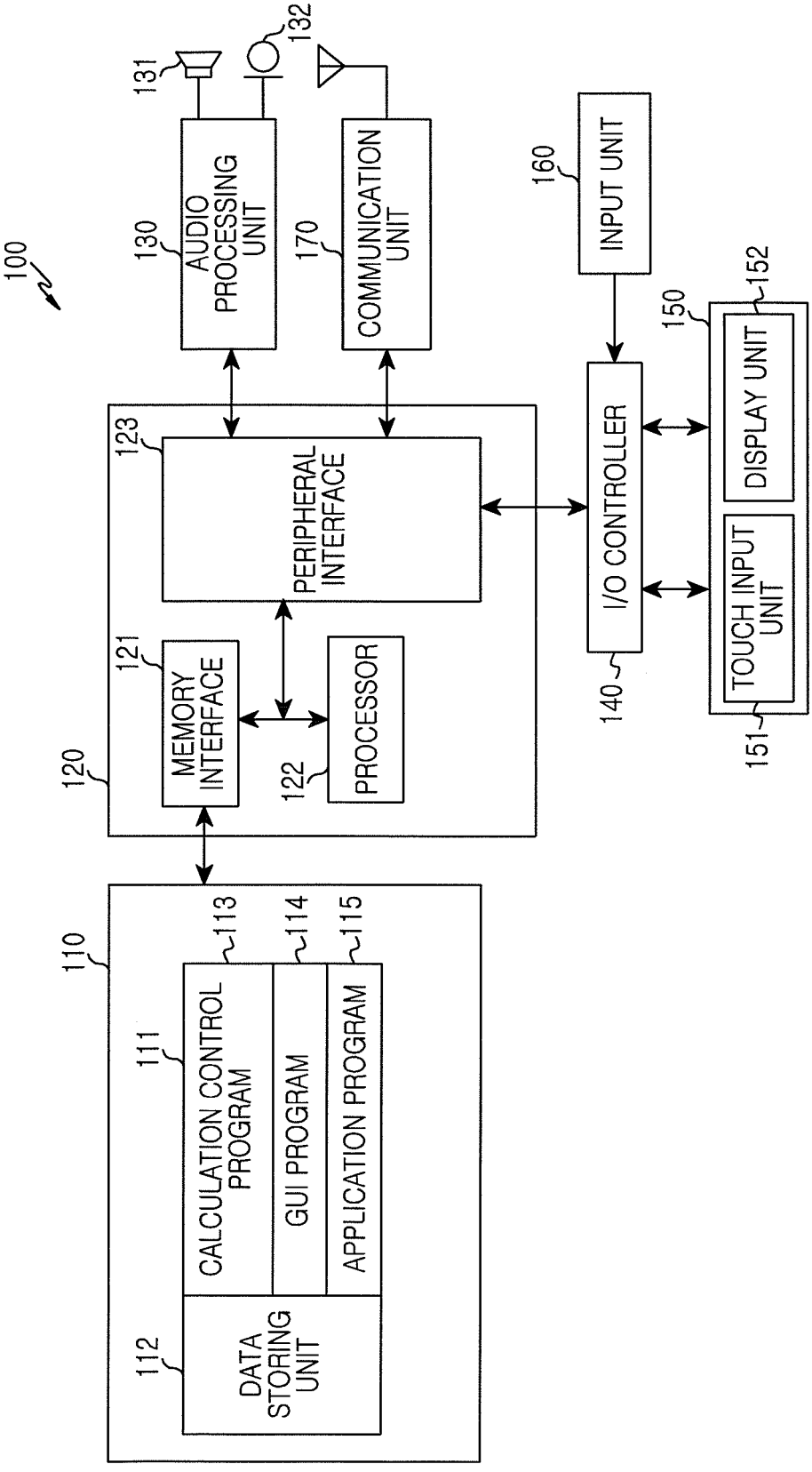

100
110
111
112
113
114
115
CALCULATION CONTROL PROGRAM
GUI PROGRAM
APPLICATION PROGRAM
DATA STORING UNIT
120
121
122
123
MEMORY INTERFACE
PROCESSOR
PERIPHERAL INTERFACE
130
131
132
AUDIO PROCESSING UNIT
170
COMMUNICATION UNIT
140
I/O CONTROLLER
150
151
152
TOUCH INPUT UNIT
DISPLAY UNIT
160
INPUT UNIT

FIG. 1

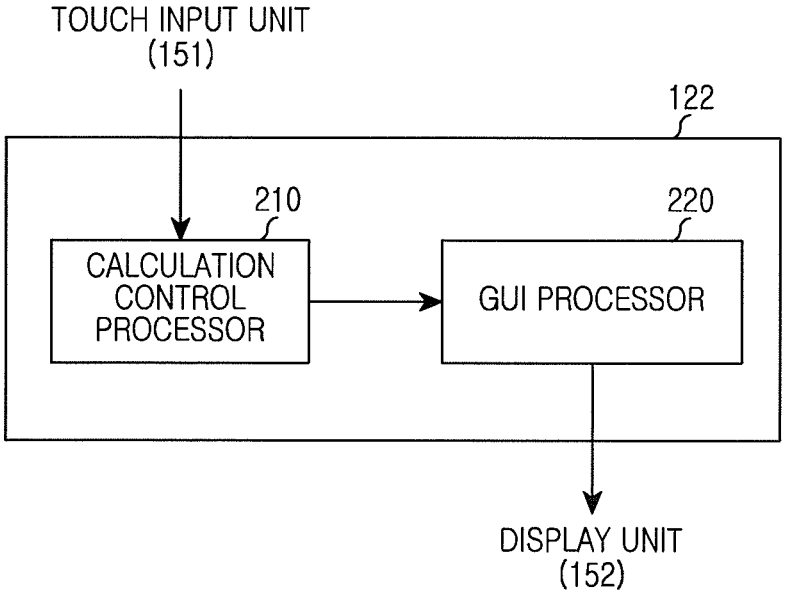

TOUCH INPUT UNIT
(151)
122
210
220
CALCULATION CONTROL PROCESSOR
GUI PROCESSOR
DISPLAY UNIT
(152)

FIG.2

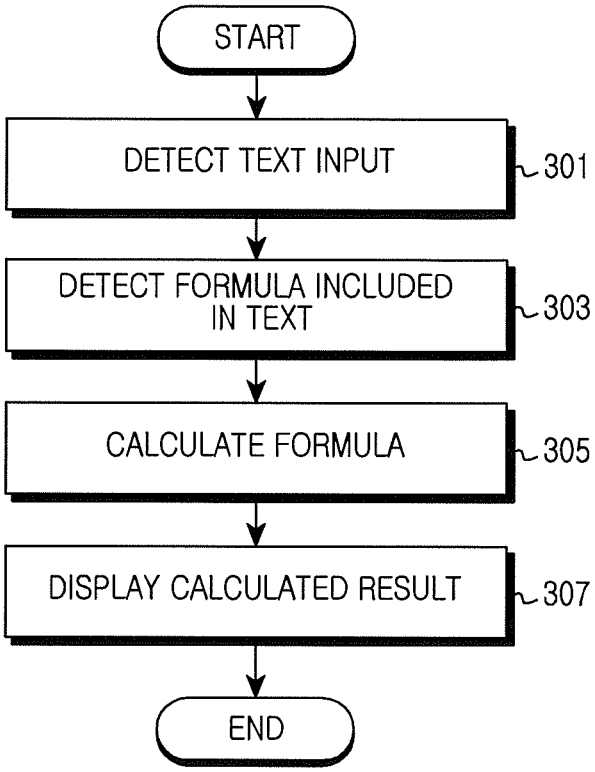

START
DETECT TEXT INPUT
301
DETECT FORMULA INCLUDED IN TEXT
303
CALCULATE FORMULA
305
DISPLAY CALCULATED RESULT
307
END

FIG.3A

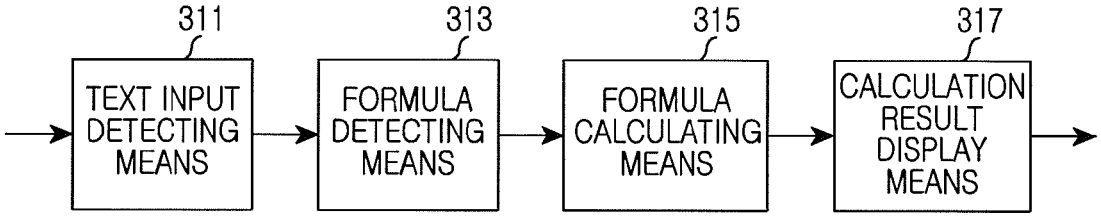

311
TEXT INPUT DETECTING MEANS
313
FORMULA DETECTING MEANS
315
FORMULA CALCULATING MEANS
317
CALCULATION RESULT DISPLAY MEANS

FIG.3B

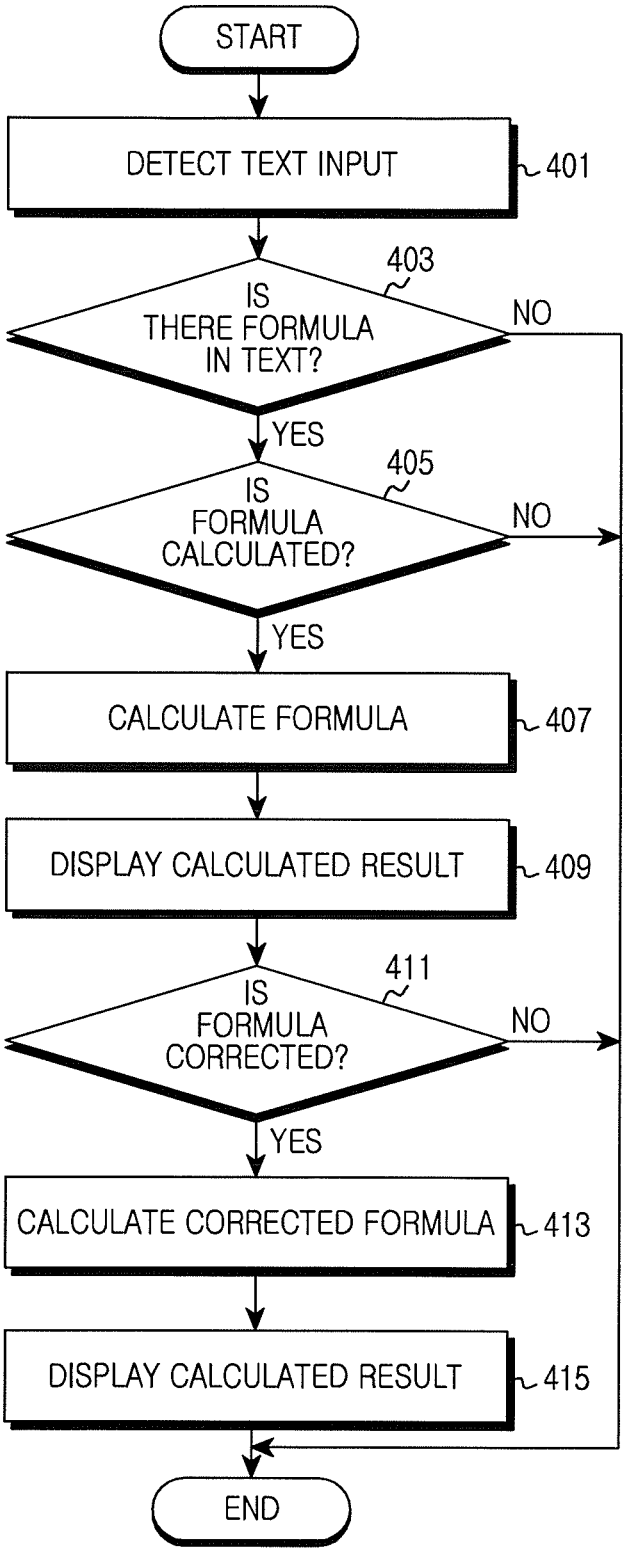

START
DETECT TEXT INPUT
401
403
IS THERE FORMULA IN TEXT?
NO
YES
405
IS FORMULA CALCULATED?
NO
YES
CALCULATE FORMULA
407
DISPLAY CALCULATED RESULT
409
411
IS FORMULA CORRECTED?
NO
YES
CALCULATE CORRECTED FORMULA
413
DISPLAY CALCULATED RESULT
415
END

FIG.4

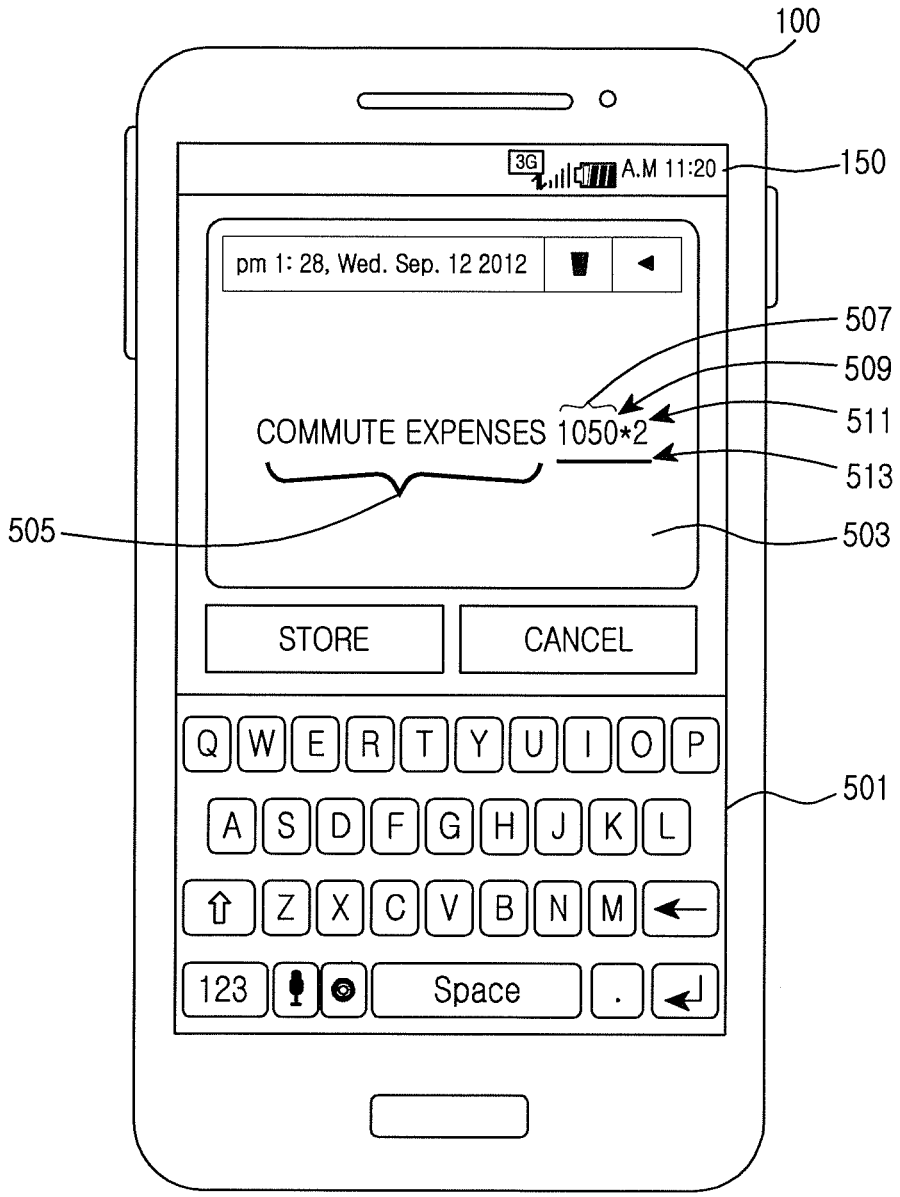

100
3G
A.M 11:20
150
pm 1: 28, Wed. Sep. 12 2012
507
509
511
COMMUTE EXPENSES 1050*2
513
505
503
STORE
CANCEL
Q W E R T Y U I O P
A S D F G H J K L
Z X C V B N M
123
Space
501

FIG.5A

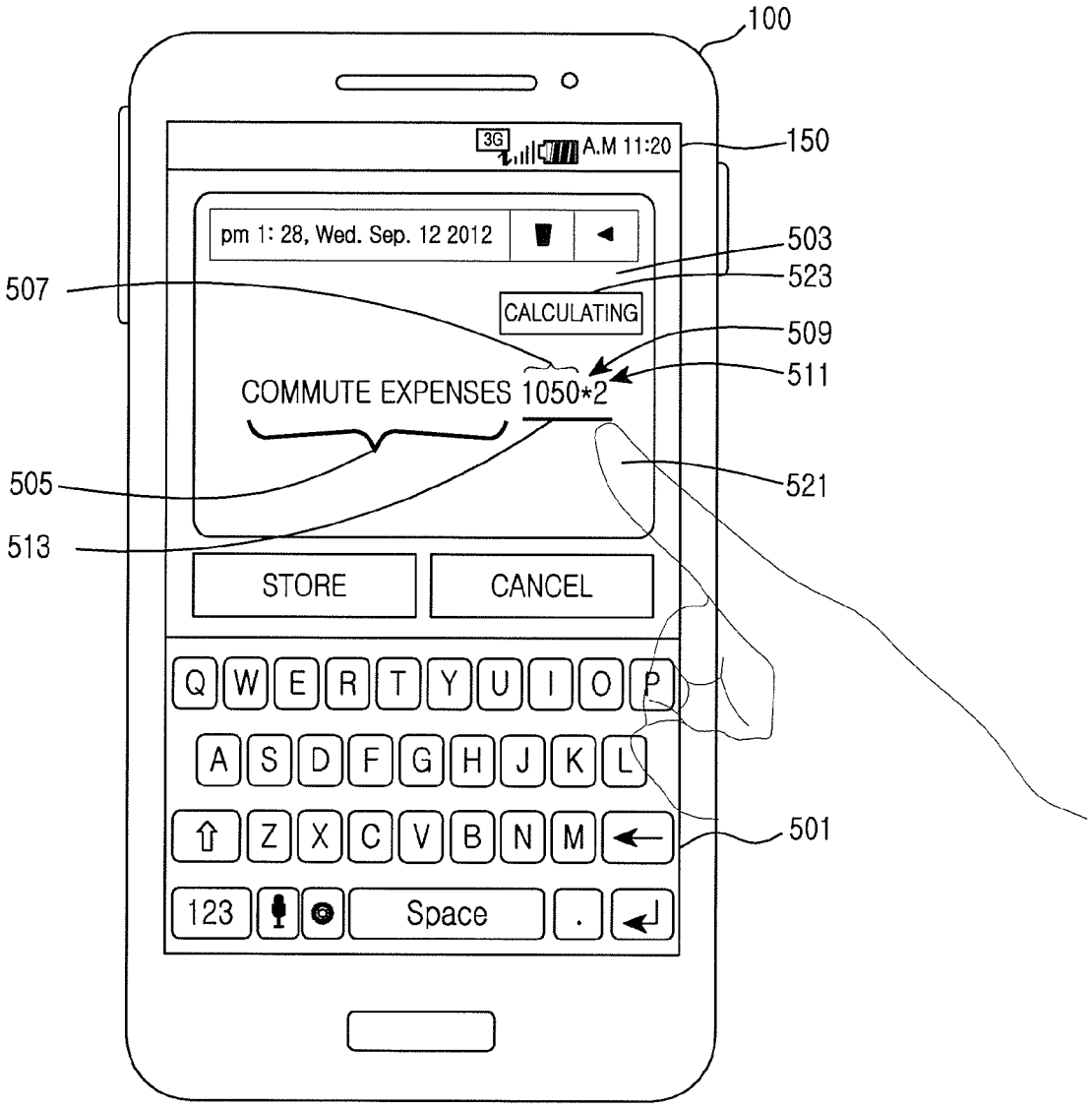

100
3G
A.M 11:20
150
pm 1: 28, Wed. Sep. 12 2012
503
523
507
CALCULATING
509
511
COMMUTE EXPENSES 1050*2
505
521
513
STORE
CANCEL
Q W E R T Y U I O P
A S D F G H J K L
Z X C V B N M
501
123
Space

FIG.5B

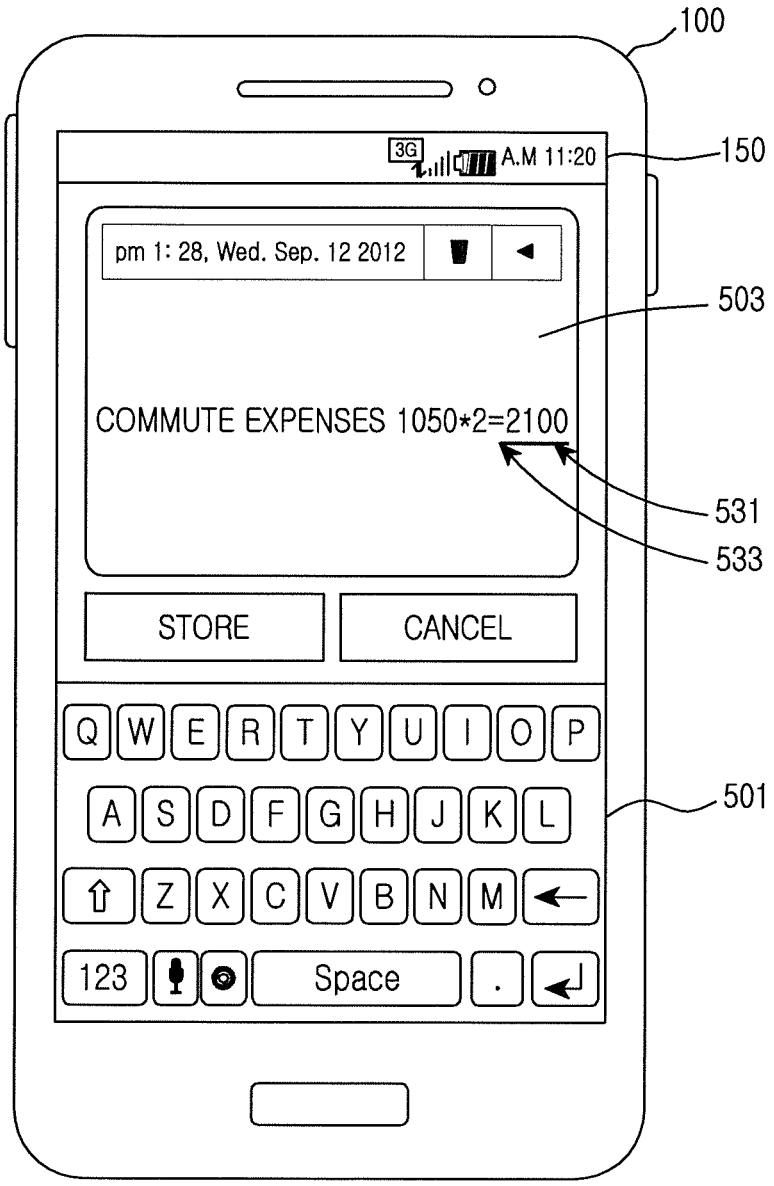

100
3G
A.M 11:20
150
pm 1: 28, Wed. Sep. 12 2012
503
COMMUTE EXPENSES 1050*2=2100
531
533
STORE
CANCEL
Q W E R T Y U I O P
A S D F G H J K L
Z X C V B N M
123
Space
501

FIG.5C

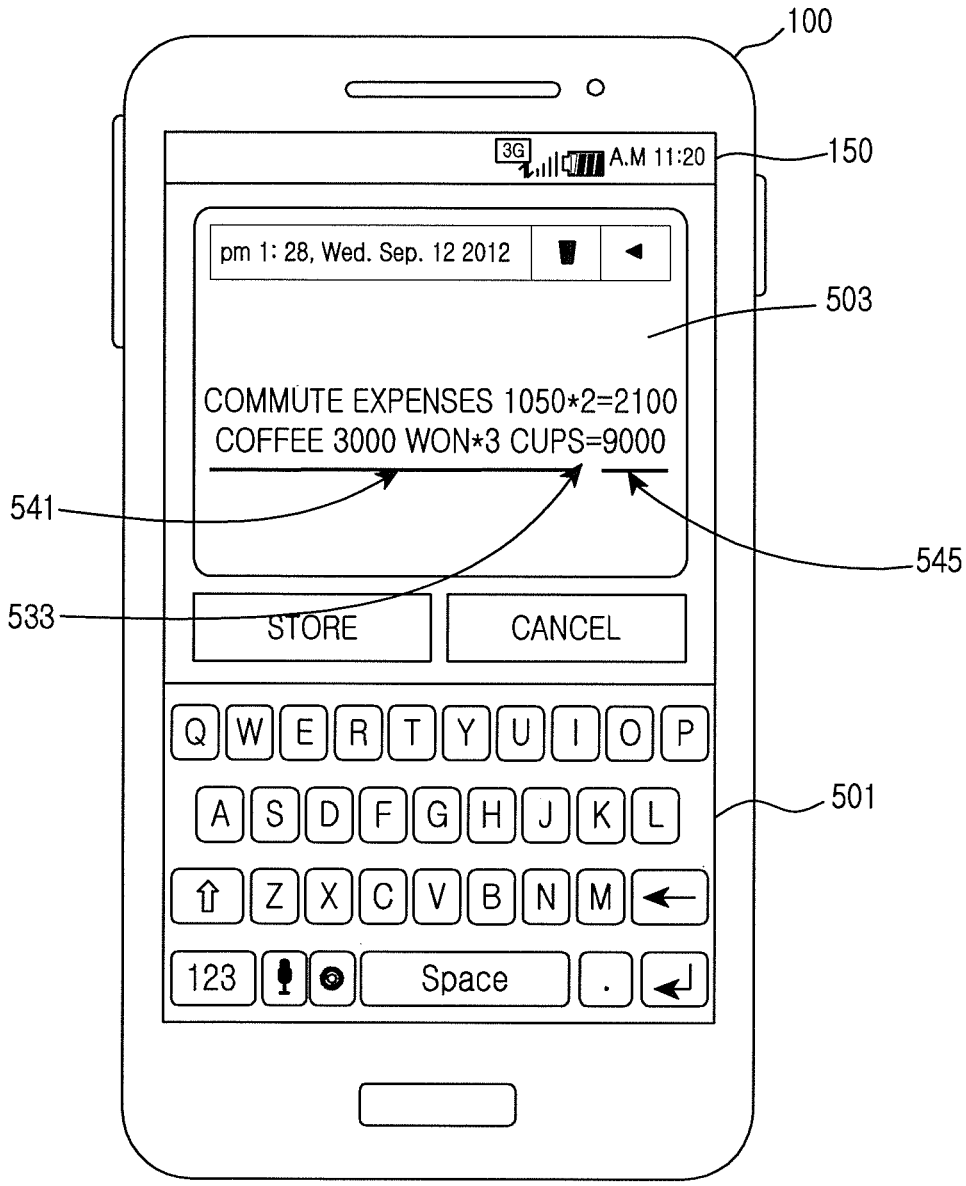

100
3G
A.M 11:20
150
pm 1: 28, Wed. Sep. 12 2012
503
COMMUTE EXPENSES 1050*2=2100
COFFEE 3000 WON*3 CUPS=9000
541
545
533
STORE
CANCEL
Q W E R T Y U I O P
A S D F G H J K L
Z X C V B N M
123
Space
501

FIG.5D

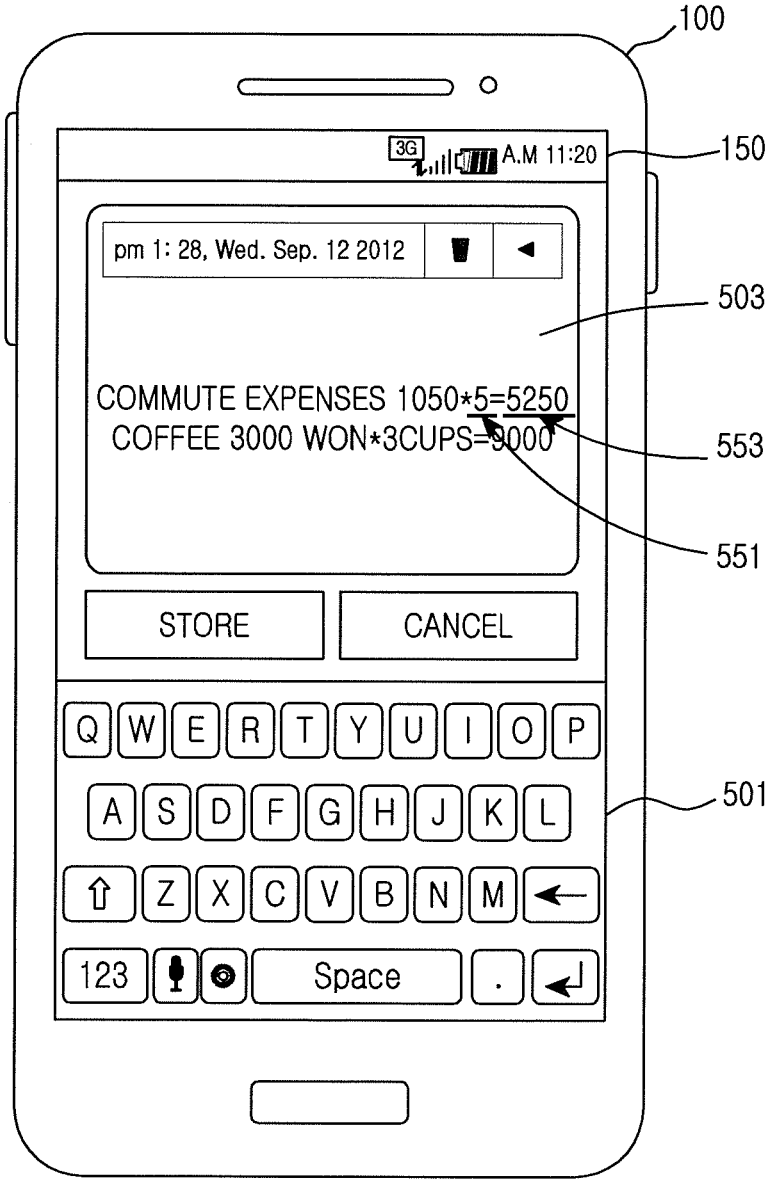

100
3G
A.M 11:20
150
pm 1: 28, Wed. Sep. 12 2012
503
COMMUTE EXPENSES 1050*5=5250
COFFEE 3000 WON*3CUPS=9000
553
551
STORE
CANCEL
Q W E R T Y U I O P
A S D F G H J K L
Z X C V B N M
123
Space
501

FIG.5E

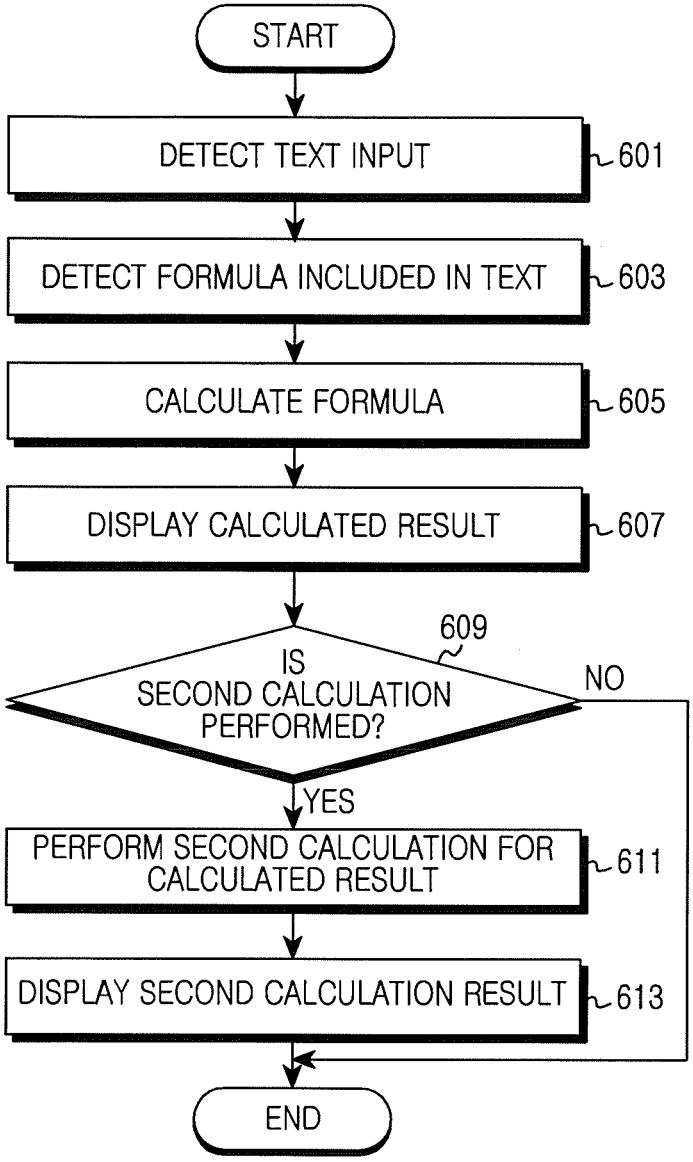

START
DETECT TEXT INPUT
601
DETECT FORMULA INCLUDED IN TEXT
603
CALCULATE FORMULA
605
DISPLAY CALCULATED RESULT
607
609
IS SECOND CALCULATION PERFORMED?
NO
YES
PERFORM SECOND CALCULATION FOR CALCULATED RESULT
611
DISPLAY SECOND CALCULATION RESULT
613
END

FIG.6

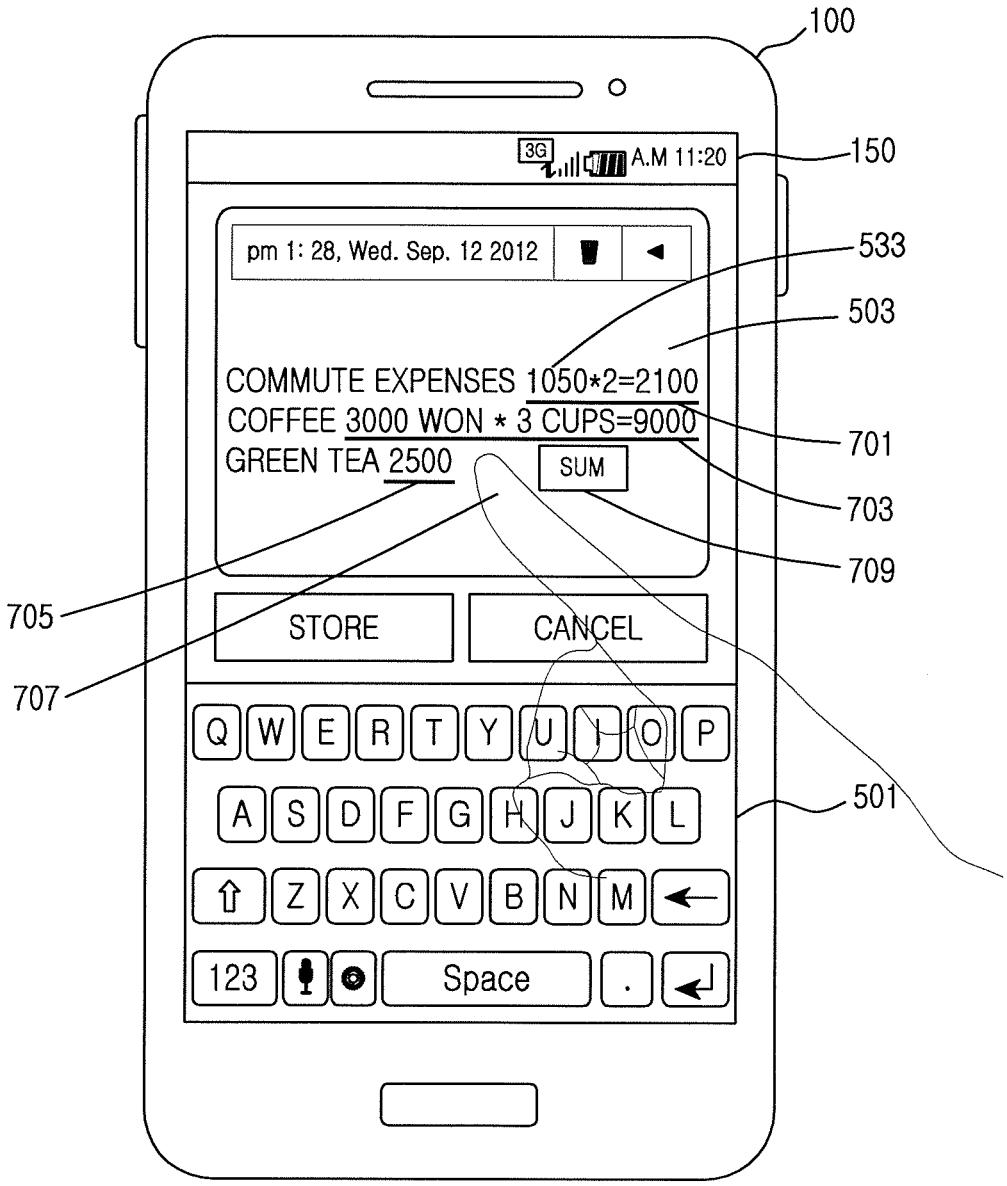

100
3G
A.M 11:20
150
pm 1: 28, Wed. Sep. 12 2012
533
503
COMMUTE EXPENSES 1050*2=2100
COFFEE 3000 WON * 3 CUPS=9000
GREEN TEA 2500
SUM
701
703
709
705
707
STORE
CANCEL
Q W E R T Y U I O P
A S D F G H J K L
Z X C V B N M
123
Space
501

FIG.7A

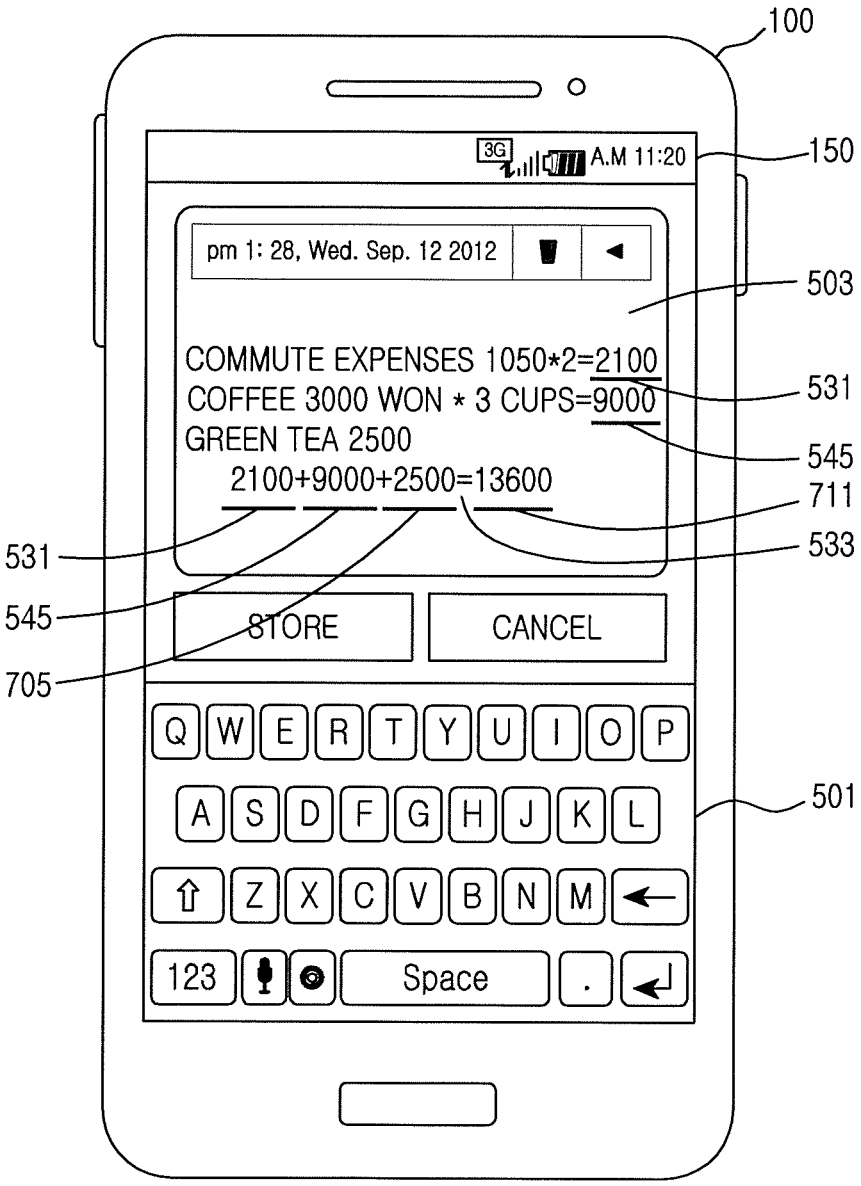

100
3G
A.M 11:20
150
pm 1: 28, Wed. Sep. 12 2012
503
COMMUTE EXPENSES 1050*2=2100
COFFEE 3000 WON * 3 CUPS=9000
GREEN TEA 2500
2100+9000+2500=13600
531
545
711
533
531
545
705
STORE
CANCEL
Q W E R T Y U I O P
A S D F G H J K L
Z X C V B N M
123
Space
.
501

FIG.7B

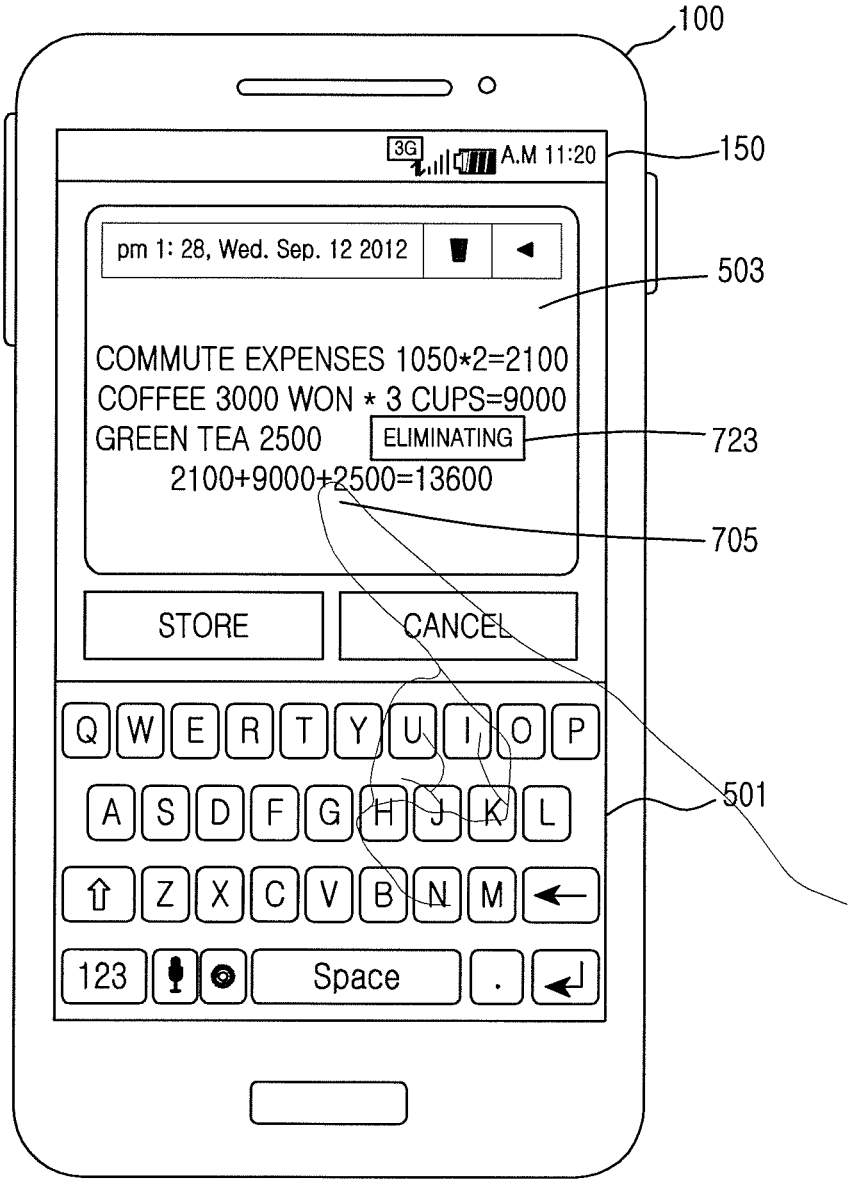

100
3G
A.M 11:20
150
pm 1: 28, Wed. Sep. 12 2012
503
COMMUTE EXPENSES 1050*2=2100
COFFEE 3000 WON * 3 CUPS=9000
GREEN TEA 2500
ELIMINATING
723
2100+9000+2500=13600
705
STORE
CANCEL
Q W E R T Y U I O P
A S D F G H J K L
Z X C V B N M
123
Space
501

FIG.7C

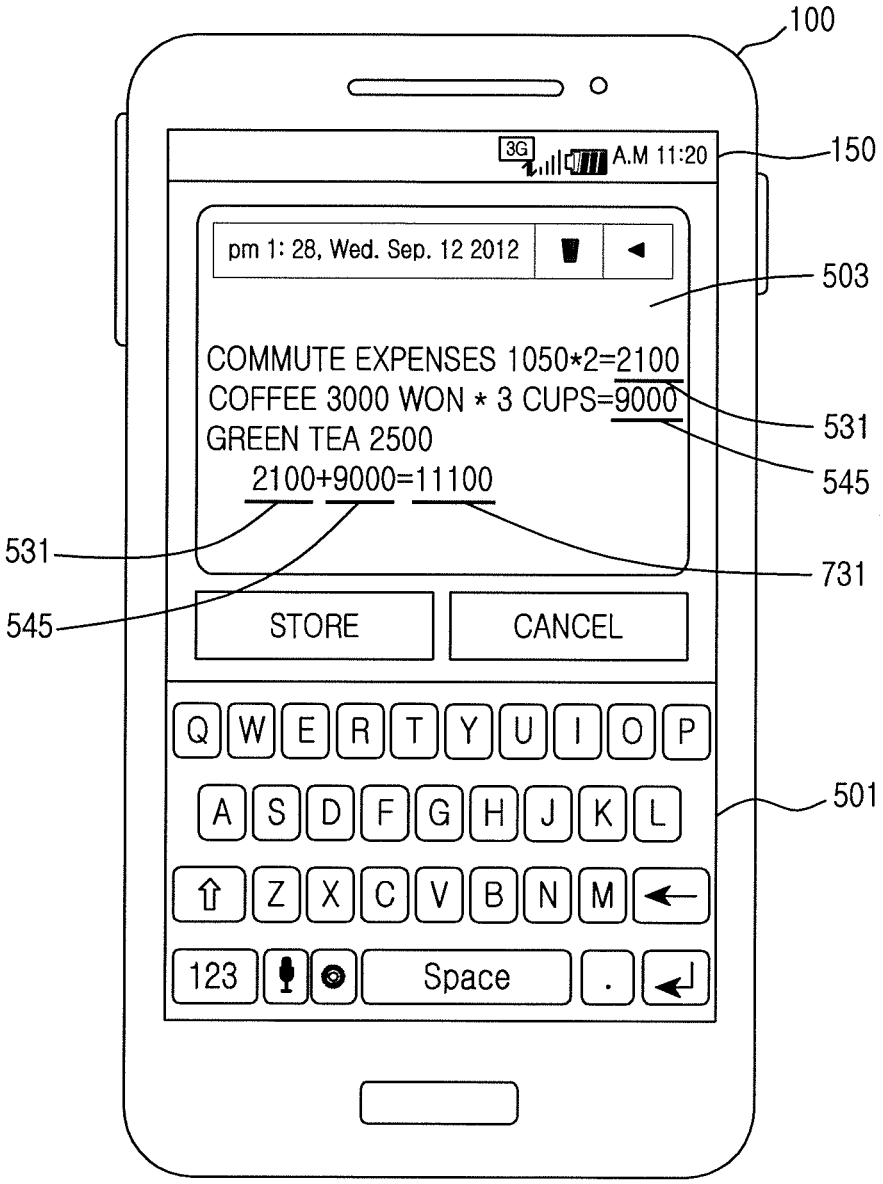

100
3G
A.M 11:20
150
pm 1: 28, Wed. Sep. 12 2012
503
COMMUTE EXPENSES 1050*2=2100
COFFEE 3000 WON * 3 CUPS=9000
GREEN TEA 2500
2100+9000=11100
531
545
531
545
731
STORE
CANCEL
Q W E R T Y U I O P
A S D F G H J K L
Z X C V B N M
123
Space
501

FIG.7D

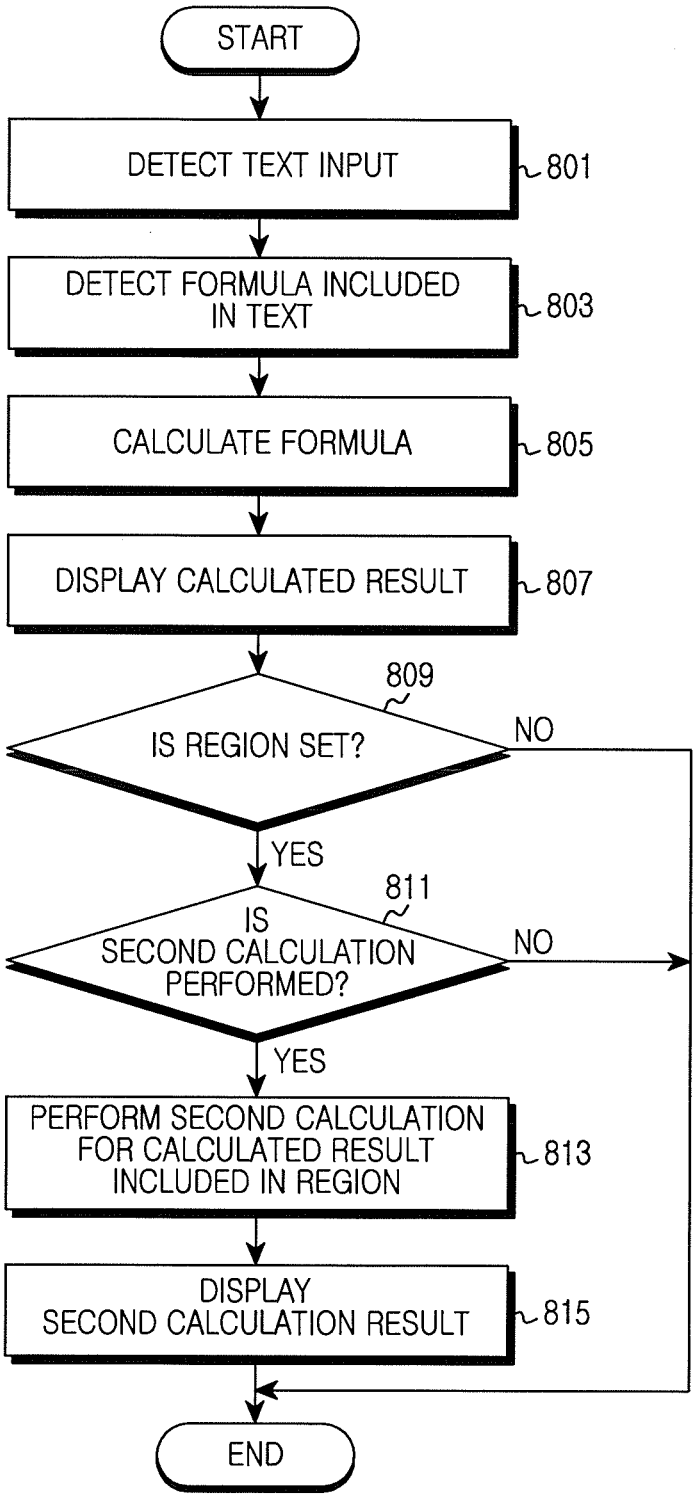

START
DETECT TEXT INPUT
801
DETECT FORMULA INCLUDED IN TEXT
803
CALCULATE FORMULA
805
DISPLAY CALCULATED RESULT
807
809
IS REGION SET?
NO
YES
811
IS SECOND CALCULATION PERFORMED?
NO
YES
PERFORM SECOND CALCULATION FOR CALCULATED RESULT INCLUDED IN REGION
813
DISPLAY SECOND CALCULATION RESULT
815
END

FIG.8

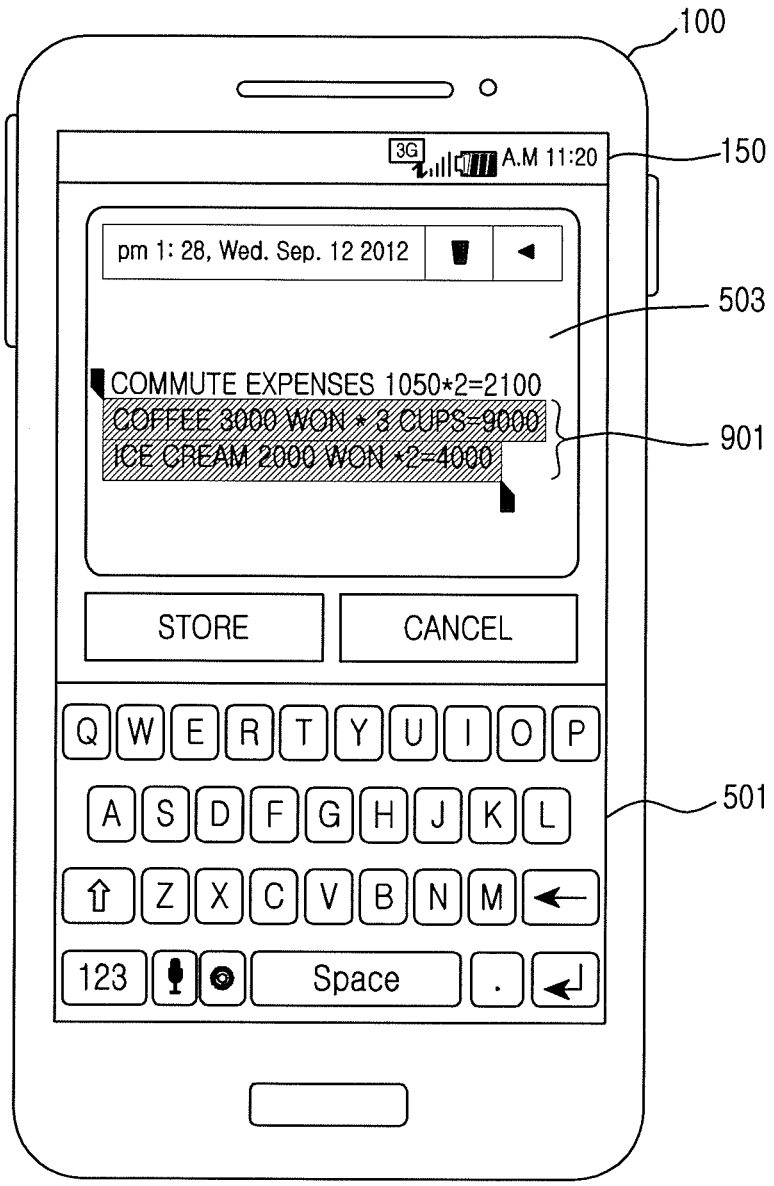

100
3G
A.M 11:20
150
pm 1: 28, Wed. Sep. 12 2012
503
COMMUTE EXPENSES 1050*2=2100
COFFEE 3000 WON * 3 CUPS=9000
ICE CREAM 2000 WON *2=4000
901
STORE
CANCEL
Q W E R T Y U I O P
A S D F G H J K L
501
Z X C V B N M
123
Space

FIG.9A

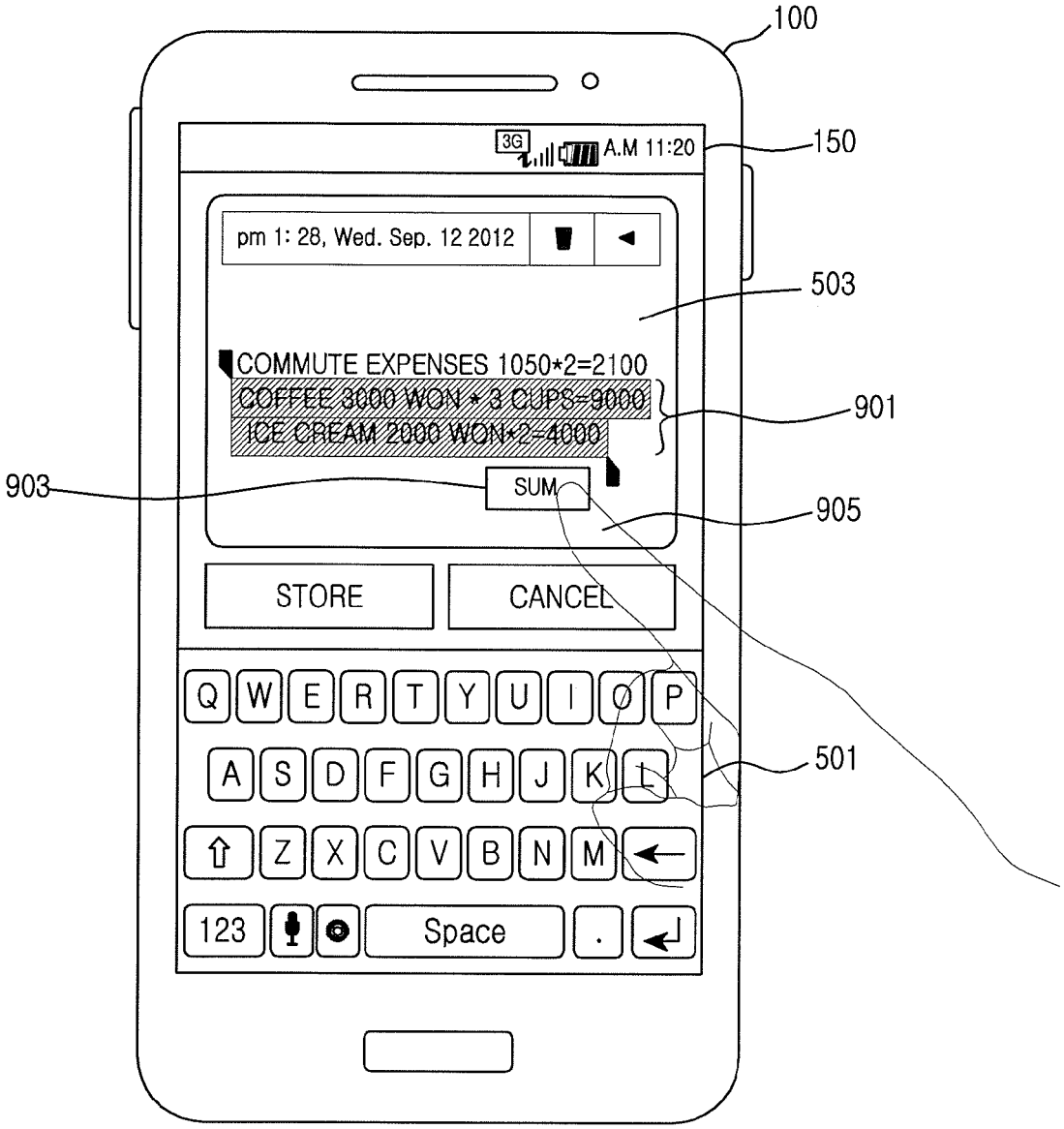

100
3G
A.M 11:20
150
pm 1: 28, Wed. Sep. 12 2012
503
COMMUTE EXPENSES 1050*2=2100
COFFEE 3000 WON * 3 CUPS=9000
ICE CREAM 2000 WON*2=4000
901
903
SUM
905
STORE
CANCEL
Q W E R T Y U I O P
A S D F G H J K L
501
Z X C V B N M
123
Space

FIG.9b

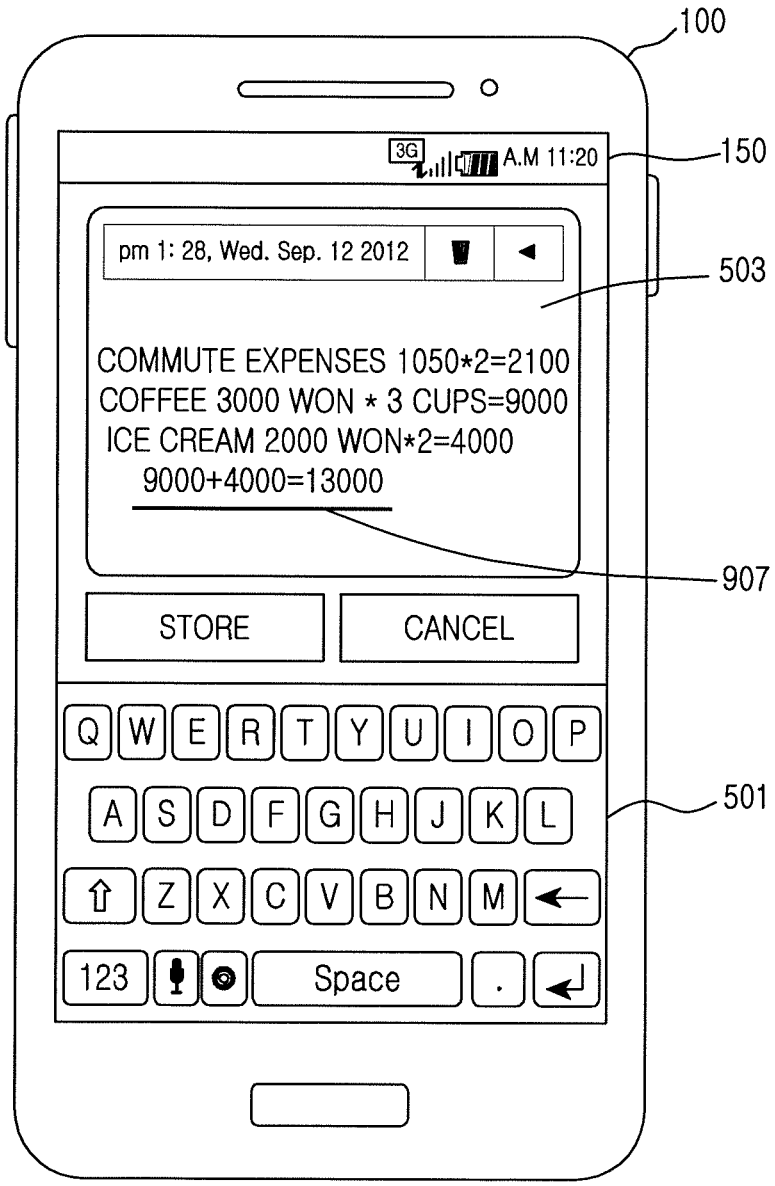

100
3G
A.M 11:20
150
pm 1: 28, Wed. Sep. 12 2012
503
COMMUTE EXPENSES 1050*2=2100
COFFEE 3000 WON * 3 CUPS=9000
ICE CREAM 2000 WON*2=4000
9000+4000=13000
907
STORE
CANCEL
Q W E R T Y U I O P
A S D F G H J K L
Z X C V B N M
123
Space
501

FIG.9c

FORMULA CALCULATION METHOD AND ELECTRONIC DEVICE THEREFOR

CROSS-REFERENCE TO RELATED APPLICATION(S) AND CLAIM OF PRIORITY

The present application is related to and claims the benefit under 35 U.S.C. §119(a) of a Korean patent application filed in the Korean Intellectual Property Office on Dec. 20, 2012 and assigned Serial No. 10-2012-0149828, the entire disclosure of which is hereby incorporated by reference.

TECHNICAL FIELD

The present disclosure relates to a method and apparatus for calculating a formula included in text in an electronic device.

BACKGROUND

Electronic devices have become necessities of modern people due to ease in carrying them. They have been developed into multimedia devices which provide various services, such as voice and video communication services, information input and output services, data storage services, photography services, e-mail services, message services, memo services, and calculator services. Calculator services can include normal calculator services and engineering calculator services.

When it is necessary to calculate a formula during text input in an application program, the electronic device changes a screen and executes a separate calculator application program. Thereafter, the electronic device calculates an input formula, and copies and displays the calculated value on a screen of the application necessary for calculating the formula.

As described above, there is inconvenience when a plurality of processes must be performed to calculate a formula included in text in an application program.

SUMMARY

To address the above-discussed deficiencies, it is a primary object to provide a method and apparatus for calculating a formula in an electronic device.

Certain embodiments of the present disclosure provide a method and apparatus for calculating a formula included in text in an electronic device.

Certain embodiments of the present disclosure provide a method and apparatus for calculating a formula included in text of a specific region in an electronic device.

In accordance with certain embodiments of the present disclosure, a method of calculating a formula included in text in an electronic device is provided. The method includes detecting the text, detecting at least one formula included in the detected text, calculating at least the one formula, and displaying the calculated result.

In accordance with another certain embodiments of the present disclosure, an electronic device is provided. The electronic device includes at least one processor, at least one memory, and at least one program which is stored in at least the one memory and is configured to be executable by at least the one processor, wherein at least the one program detects input text, detects at least one formula included in the detected text, calculates at least the one formula, and displays the calculated result.

Before undertaking the DETAILED DESCRIPTION below, it may be advantageous to set forth definitions of certain words and phrases used throughout this patent document: the terms "include" and "comprise," as well as derivatives thereof, mean inclusion without limitation; the term "or," is inclusive, meaning and/or; the phrases "associated with" and "associated therewith," as well as derivatives thereof, may mean to include, be included within, interconnect with, contain, be contained within, connect to or with, couple to or with, be communicable with, cooperate with, interleave, juxtapose, be proximate to, be bound to or with, have, have a property of, or the like; and the term "controller" means any device, system or part thereof that controls at least one operation, such a device may be implemented in hardware, firmware or software, or some combination of at least two of the same. It should be noted that the functionality associated with any particular controller may be centralized or distributed, whether locally or remotely. Definitions for certain words and phrases are provided throughout this patent document, those of ordinary skill in the art should understand that in many, if not most instances, such definitions apply to prior, as well as future uses of such defined words and phrases.

BRIEF DESCRIPTION OF THE DRAWINGS

For a more complete understanding of the present disclosure and its advantages, reference is now made to the following description taken in conjunction with the accompanying drawings, in which like reference numerals represent like parts:

FIG. **1** illustrates a configuration of an electronic device according to certain embodiments of the present disclosure;

FIG. **2** illustrates a detailed configuration of a processor according to certain embodiments of the present disclosure;

FIG. **3**A illustrates a process of calculating a formula in an electronic device according to certain embodiments of the present disclosure;

FIG. **3**B illustrates a configuration of an electronic device for calculating a formula according to certain embodiments of the present disclosure;

FIG. **4** illustrates a process of calculating a formula in an electronic device according to another embodiment of the present disclosure;

FIGS. **5**A to **5**E are screens illustrating a process of calculating a formula in an electronic device according to another embodiment of the present disclosure;

FIG. **6** illustrates a process of correcting a result of a formula in an electronic device according to certain embodiments of the present disclosure;

FIGS. **7**A to **7**D are screens illustrating a process of correcting a result of a formula in an electronic device according to certain embodiments of the present disclosure;

FIG. **8** illustrates a process of calculating a formula for a specific region in an electronic device according to certain embodiments of the present disclosure; and

FIGS. **9**A to **9**C are screens illustrating a process of calculating a formula for a specific region in an electronic device according to certain embodiments of the present disclosure.

DETAILED DESCRIPTION

FIGS. **1** through **9**C, discussed below, and the various embodiments used to describe the principles of the present disclosure in this patent document are by way of illustration only and should not be construed in any way to limit the

scope of the disclosure. Those skilled in the art will understand that the principles of the present disclosure may be implemented in any suitably arranged wireless communication device. Exemplary embodiments of the present disclosure will be described herein below with reference to the accompanying drawings. In the following description, well-known functions or constructions are not described in detail since they would obscure the disclosure in unnecessary detail.

Hereinafter, a description will be given for a method and apparatus for calculating a formula included in text in an electronic device. The electronic device can be, for example, any one of a mobile communication terminal, a Personal Digital Assistant (PDA), a laptop, a smart phone, a netbook, a television, a Mobile Internet Device (MID), a Ultra Mobile Personal Computer (UMPC), a tablet PC, a navigation device, and a Moving Picture Experts Group (MPEG) layer 3 (MP3) player.

FIG. **1** illustrates a configuration of an electronic device according to certain embodiments of the present disclosure. As shown in FIG. **1**, the electronic device denoted by **100** can include a memory **110**, a processor unit **120**, an audio processing unit **130**, an Input/Output (I/O) controller **140**, a touch screen **150**, an input unit **160**, and a communication unit **170**. Herein, the memory **110** can be a plurality of memories.

The memory **110** can include a program storing unit **111** for storing programs for controlling operations of the electronic device **100** and a data storing unit **112** for storing data generated while the programs are executed. The program storing unit **111** includes a calculation control program **113**, a Graphic User Interface (GUI) program **114**, and at least one application program **115**. Herein, the programs included in the program storing unit **111** can be expressed in an instruction set as a set of instructions.

The calculation control program **113** can include at least one software component for calculating a formula included in text. For example, when a formula calculation event is generated in an application program, the calculation control program **113** calculates a formula included in text input to the application program and obtains a result value. Further, after a result value is obtained through formula calculation, when a correction event for a formula is generated, the calculation control program **113** can calculate a corrected formula and obtain a result value. In another example, when a formula calculation event is generated, the calculation control program **113** can calculate a formula included in text of a set partial region of the entire text.

The GUI program **114** can include at least one software component for providing a UI as graphics on a display unit **152**. For example, the GUI program **114** performs a control operation to display text input to the application program on the display unit **152**. The GUI program **114** can perform a control operation to display a result value according to formula calculation, transmitted from the calculation control program **113**, on the display unit **152**. When a partial text is selected in the entire text, the GUI program **114** can perform a control operation to apply a previously defined form to the selected partial text and display the applied form on the display unit **152**. Herein, the previously defined form can include an underline, deepness, a slope, a color, a shadow, a highlighter, and a size.

The application program **115** can include a software component for at least one application program installed in the electronic device **100**. The processor unit **120** can include a memory interface **121**, at least one processor **122**, and a peripheral interface **123**. Herein, the memory interface **121**, at least the one processor **122**, and the peripheral interface **123** which are included in the processor unit **120** can be integrated in at least one Integrated Circuit (IC) or be separately implemented. The memory interface **121** controls when a component like the processor **122** or the peripheral interface **123** accesses the memory **110**. The peripheral interface **123** controls connection among an I/O peripheral of the electronic device **100**, the processor **122**, and the memory interface **121**.

The processor **122** provides a variety of multimedia services using at least one software program. Also, the processor **122** executes at least one program stored in the memory **110** and provides a service according to the corresponding program. For example, the processor **122** can be, as shown in FIG. **2**, configured to execute the calculation control program **113** and calculate a formula included in text.

The audio processing unit **130** provides an audio interface between a user and the electronic device **100** through a speaker **131** and a microphone **132**. The I/O controller **140** provides an interface between I/O devices, such as the display device **152** and the input unit **160**, and the peripheral interface **123**.

The touch screen **150** is an input and output device for inputting and outputting information. The touch screen **150** can include a touch input unit **151** and the display unit **152**. The touch input unit **151** provides touch information sensed through a touch panel to the processor unit **120** through the I/O controller **140**. That is, the touch input unit **151** provides touch information by an electronic pen or a finger of the user to the processor unit **120** through the I/O controller **140**.

The display unit **152** displays state information of the electronic device **100**, characters input by the user, moving pictures, still pictures, etc. For example, the display unit **152** displays text input to an application program by the GUI program **114**. In another example, the display unit **152** can display a result value according to formula calculation by the GUI program **114**. In yet another example, the display unit **152** can apply a previously defined form to partial text and display the applied form by the GUI program **114**. The previously defined form can include at least one of an underline, deepness, a slope, a color, a shadow, a highlighter, and a size. The input unit **160** provides input data generated by a selection of the user to the processor unit **120** through the I/O controller **140**. In one example, the input unit **160** includes only a control button for control of the electronic device **100**. In another example, the input unit **160** can be configured as a keypad for receiving input data. The communication unit **170** can include at least one software component for performing a communication function for voice communication and data communication.

Herein, the communication unit **170** can be classified into a plurality of communication sub-modules which support different communication networks. For example, the communication network can be, but is not limited to, any one of a Global System for Mobile communication (GSM) network, an Enhanced Data GSM Environment (EDGE) network, a Code Division Multiple Access (CDMA) network, a W-CDMA network, a Long Term Evolution (LIE) network, an Orthogonal Frequency Division Multiple Access (OFDMA) network, a wireless Local Area Network (LAN), a Bluetooth network, a Near Field Communication (NFC) network.

FIG. **2** illustrates a detailed configuration of a processor according to certain embodiments of the present disclosure.

As shown in FIGS. **1** and **2**, the processor **122** can include a calculation control processor **210** and a GUI processor **220**.

The calculation control processor **210** executes the calculation control program **113** of the program storing unit **111** and calculates a formula included in text. For example, when a formula calculation event is generated in an application program, the calculation control processor **210** calculates a formula included in text input to the application program and obtains a result value. In another example, after a result value is obtained through formula calculation, when a correction event for a formula is generated, the calculation control processor **210** can calculate a corrected formula and obtain a result value. Also, in another example, when a formula calculation event is generated, the calculation control processor **210** can calculate a formula included in text of a set partial region of the entire ext.

The GUI processor **220** executes the GUI program **114** of the program storing unit **111** and provides a UI as graphics on the display unit **152**. For example, the GUI processor **220** performs a control operation to display text input to the application program on the display unit **152**. In another example, the GUI processor **220** can perform a control operation to display a result value according to formula calculation, transmitted from the calculation control processor **210**, on the display unit **152**. In another example, when a partial text is selected in the entire text, the GUI processor **220** can perform a control operation to apply a previously defined form to the selected partial text and display the applied form on the display unit **152**. Herein, the previously defined form can include at least one of an underline, deepness, a slope, a color, a shadow, a highlighter, and a size.

In certain embodiments of the present disclosure, the electronic device **100** can include the connection control processor **210** including the connection control program **113** to calculate a formula included in text. In another embodiment of the present disclosure, the electronic device **100** can include a separate connection control processing unit including the connection control program **113**.

FIG. **3**A illustrates a process of calculating a formula in an electronic device according to certain embodiments of the present disclosure. Referring to FIGS. **1** and **3**A, the electronic device **100** detects text input in step **301**. For example, as show in FIG. **5**A, the electronic device **100** displays text **505**, **507**, **509**, and **511** input through an input device **501** displayed on the touch screen **150** on a memo application **503**.

After the text input is detected, the electronic device **100** proceeds to step **303** and detects a formula included in the text. For example, the electronic device **100** detects a formula including a plurality of numerals and at least one operator. Herein, the electronic device **100** can verify whether there are data in a buffer memory which stores only a formula separately in input text. For example, the electronic device **100** can detect a formula included in a first region of the detected text.

After the formula included in the text is detected, the electronic device **100** proceeds to step **305** and calculates the formula. For example, as shown in FIG. **5**B, when input **521** for a "calculating" **523** displayed on the touch screen **150** is sensed, the electronic device **100** calculates the formula using a separate calculator application program. For example, as shown in FIG. **5**B, when the input **521** for the "calculating" **523** displayed on the touch screen **150** is sensed, the electronic device **100** can process the formula using a calculation function included in the memo application **503**. For example, as shown in FIG. **5**B, when a "=" is selected in the input device **501** displayed on the touch screen **150**, the electronic device **100** can calculate the formula using a separate calculator application program. For example, as shown in FIG. **5**B, when the "=" is selected in the input device **501** displayed on the touch screen **150**, the electronic device **100** can calculate the formula using a calculation function included in the memo application **503**.

After the formula is performed, the electronic device **100** proceeds to step **307** and displays the calculated result. For example, as shown in FIG. **5**C, the electronic device **100** displays a calculated result **531** together with the "=" **533** on the memo application program **533**. Thereafter, the electronic device **100** can end the algorithm of FIG. **3**A.

As described above, the process of calculating a formula in the electronic device can be configured, as shown in FIG. **3**B, as an apparatus for calculating a formula in the electronic device.

FIG. **3**B illustrates a configuration of an electronic device for calculating a formula according to certain embodiments of the present disclosure.

Referring to FIGS. **1** and **3**B, the electronic device **100** can include a text input detecting means, that is, a first means **311** for detecting text input, a formula detecting means, that is, a second means **313** for detecting a formula included in text, a formula calculating means, that is, a third means **315** for calculating the formula, and a calculation result display means, that is, a fourth means **317** for displaying the calculated result.

The first means **311** detects the text input. For example, as show in FIG. **5**A, the first means **311** displays text **505**, **507**, **509**, and **511** input through an input device **501** displayed on the touch screen **150** on a memo application **503**.

The second means **313** detects the formula included in the text. For example, the second means **313** detects a formula including a plurality of numerals and at least one operator. Herein, the second means **313** can verify whether there are data in a buffer memory which stores only a formula separately in input text. For example, the second means **313** can detect a formula included in a first region of the detected text.

The third means **313** calculates the formula. For example, as shown in FIG. **5**B, when input **521** for a "calculating" **523** displayed on the touch screen **150** is sensed, the third means **313** calculates the formula using a separate calculator application program. For example, as shown in FIG. **5**B, when the input **521** for the "calculating" **523** displayed on the touch screen **150** is sensed, the third means **313** can process the formula using a calculation function included in the memo application **503**. In another example, as shown in FIG. **5**B, when a "=" is selected in the input device **501** displayed on the touch screen **150**, the third means **313** can calculate the formula using a separate calculator application program. In another example, as shown in FIG. **5**B, when the "=" is selected in the input device **501** displayed on the touch screen **150**, the third means **313** can calculate the formula using a calculation function included in the memo application **503**.

The fourth means **313** displays the calculated result. For example, as shown in FIG. **5**C, the fourth means **313** displays a calculated result **531** together with the "=" **533** on the memo application program **533**.

In certain embodiments of the present disclosure, the electronic device **100** can include means for calculating a formula. Also, the electronic device **100** can include respective means for calculating a formula as one means.

FIG. **4** illustrates a process of calculating a formula in an electronic device according to other embodiments of the

present disclosure. Referring to FIGS. **1** and **4**, the electronic device **100** detects text input in step **401**. For example, as show in FIG. **5**A, the electronic device **100** displays text **505**, **507**, **509**, and **511** input through an input device **501** displayed on the touch screen **150** on a memo application **503**.

After the text input is detected, the electronic device **100** proceeds to step **403** and verifies whether there is a formula in the text. For example, the electronic device **100** detects a formula including a plurality of numerals and at least one operator. Herein, the electronic device **100** can verify whether there are data in a buffer memory which stores only a formula separately in input text. If there is no formula in the text, the electronic device ends the algorithm of FIG. **4**.

On the other hand, when there is the formula in the text, the electronic device **100** proceeds to step **405** and verifies whether to calculate the formula. For example, as shown in FIG. **5**B, when there is the formula in the text, the electronic device **100** displays a "calculating" **523** through the touch screen **150**. Thereafter, the electronic device **100** verifies whether input **521** for the "calculating" **523** is sensed. In another example, as shown in FIG. **5**B, the electronic device **100** can verify whether a "=" is selected in the input device **501** displayed on the touch screen **150**.

If the formula will not be calculated, the electronic device **100** ends the algorithm of FIG. **4**. For example, as shown in FIG. **5**B, when the input **521** for the "calculating" **523** is not sensed, the electronic device **100** recognizes that the formula is not calculated. In another example, as shown in FIG. **5**B, when the "=" is not selected in the input device **501** displayed on the touch screen **150**, the electronic device **100** can recognize that the formula is not calculated.

On the other hand, when the formula will be calculated, the electronic device **100** proceeds to step **407** and calculates the formula. For example, as shown in FIG. **5**B, when the input **521** for the "calculating" **523** displayed on the touch screen **150** is sensed, the electronic device **100** calculates the formula using a separate calculator application program. In another example, as shown in FIG. **5**B, when the input **521** for the "calculating" **523** displayed on the touch screen **150** is sensed, the electronic device **100** can process the formula using a calculation function included in a memo application **503**. In another example, as shown in FIG. **5**B, when the "=" is selected in the input device **501** displayed on the touch screen **150**, the electronic device **100** can calculate the formula using a separate calculator application program. In another example, as shown in FIG. **5**B, when the "=" is selected in the input device **501** displayed on the touch screen **150**, the electronic device **100** can calculate the formula using a calculation function included in the memo application **503**.

After the formula is performed, the electronic device **100** proceeds to step **409** and displays the calculated result. For example, as shown in FIG. **5**C, the electronic device **100** displays a calculated result **531** together with the "=" **533** on the memo application program **533**.

In addition, after the calculated result is displayed, the electronic device **100** proceeds to step **411** and verifies whether the formula is corrected. For example, as shown in FIGs. **5**A and **5**E, the electronic device **100** verifies whether the formula is corrected from the "2" **511** to a "5" **551**. If the formula is not corrected, the electronic device **100** ends the algorithm of FIG. **4**.

On the other hand, when the formula is corrected, the electronic device **100** proceeds to step **413** and calculates the corrected formula. For example, as shown in FIGS. **5**A and **5**E, when the formula is corrected from the "2" **511** to a "5" **551**, the electronic device **100** calculates the formula using a separate calculator application program. In another example, as shown in FIGS. **5**A and **5**E, when the formula is corrected from the "2" **511** to a "5" **551**, the electronic device **100** can calculate the formula using a calculation function included in the memo application **503**.

After the corrected formula is calculated, the electronic device **100** proceeds to step **415** and displays the calculated result. For example, the electronic device **100** displays, as shown in FIG. **5**E, a calculated result **553** of the corrected formula on the memo application program **503**. Thereafter, the electronic device **100** ends the algorithm of FIG. **4**.

In other embodiments of the present disclosure, the electronic device calculates the formula including only numerals and the operator. In other embodiments of the present disclosure, the electronic device **100** can calculate, as shown in FIG. **5**D, a formula **541** including characters in addition to numerals and an operator and display the calculated result **545**. Herein, it is assumed that the characters except for the numerals and the operator are ignored.

FIG. **6** illustrates a process of correcting a result of a formula in an electronic device according to certain embodiments of the present disclosure. Referring to FIGS. **1** and **6**, the electronic device **100** detects text input in step **601**. For example, as show in FIG. **5**A, the electronic device **100** displays text **505**, **507**, **509**, and **511** input through an input device **501** displayed on the touch screen **150** on a memo application **503**.

After the text input is detected, the electronic device **100** proceeds to step **603** and detects a formula included in the text. For example, the electronic device **100** detects a formula including a plurality of numerals and at least one operator. Herein, the electronic device **100** can verify whether there are data in a buffer memory which stores only a formula separately in input text.

After the formula included in the text is detected, the electronic device **100** proceeds to step **605** and calculates the formula. For example, as shown in FIG. **5**B, when input **521** for a "calculating" **523** displayed on the touch screen **150** is sensed, the electronic device **100** calculates the formula using a separate calculator application program. In another example, as shown in FIG. **5**B, when the input **521** for the "calculating" **523** displayed on the touch screen **150** is sensed, the electronic device **100** can process the formula using a calculation function included in the memo application **503**. In another example, as shown in FIG. **5**B, when a "=" is selected in the input device **501** displayed on the touch screen **150**, the electronic device **100** can calculate the formula using a separate calculator application program. In another example, as shown in FIG. **5**B, when the "=" is selected in the input device **501** displayed on the touch screen **150**, the electronic device **100** can calculate the formula using a calculation function included in the memo application **503**.

After the formula is calculated, the electronic device **100** proceeds to step **607** and displays the calculated result. For example, as shown in FIG. **5**C, the electronic device **100** displays a calculated result **531** together with the "=" **533** on the memo application program **533**.

After the calculated result is displayed, the electronic device **100** proceeds to step **609** and verifies whether to perform a second calculation for the calculated result. Herein, the second calculation can include at least one of a sum and an average. For example, as shown in FIG. **7**A, when an operation **707** of a user is generated, the electronic device **100** displays a "sum" **709** through the touch screen **150**. Thereafter, the electronic device **100** verifies whether

input for the "sum" **709** is sensed. In another example, as shown in FIG. **7**A, the electronic device **100** can verify whether a "+" and a "−" are selected in the input device **501** displayed on the touch screen **150**.

If the second calculation for the calculated result will not be performed, the electronic device **100** ends the algorithm of FIG. **7**. For example, as shown in FIG. **7**A, when the input for the "sum" **709** is not sensed, the electronic device **100** recognizes that the second calculation is not performed. In another example, as shown in FIG. **7**A, when the "+" and the "−" are not selected in the input device **501** displayed on the touch screen **150**, the electronic device **100** can recognize that the second calculation is not performed.

On the other hand, when the second operation for the calculated result will be performed, the electronic device **100** proceeds to step **611** and performs the second operation. For example, as shown in FIG. **7**A, when the input for the "sum" **709** displayed on the touch screen **150** is sensed, the electronic device **100** performs the second calculation using a separate calculator application. In another example, as shown in FIG. **7**A, when the input for the "sum" **709** displayed on the touch screen **150** is sensed, the electronic device **100** can perform the second calculation using a calculation function included in the memo application **503**.

After the second calculation for the calculated result is performed, the electronic device **100** proceeds to step **613** and displays the second calculation result. For example, as shown in FIG. **7**B, the electronic device **100** displays a second calculation result value **711** on the memo application **503**. Herein, it is assumed that the "sum" **709** is a menu for adding all of result values **531** and **545** of a previously calculated formula included in the text shown in FIG. **7**A and a value **705** which is not calculated. Herein, as shown in FIG. **7**B, the electronic device **100** can display values **531**, **545**, and **705** used for the second calculation result value **711**.

In addition, after the second calculation result is displayed, when the formula is changed, the electronic device **100** can calculate and display the changed formula. For example, as shown in FIG. **7**C, when input for the "2500" **705** is sensed during a reference time or more, the electronic device **100** displays an "eliminating" **723** on the memo application **503**. At this time, when input for the "eliminating" **723** is sensed, the electronic device **100** displays, as shown in FIG. **7**D, a calculated result **731** except for the "2500" **705**. Herein, the description was given for the "eliminating" **723** as an example of the formula correction. However, examples of the formula correction can include an "adding" and a "correcting". Thereafter, the electronic device **100** ends the algorithm of FIG. **6**.

FIG. **8** illustrates a process of calculating a formula for a specific region in an electronic device according to certain embodiments of the present disclosure. Referring to FIGS. **1** and **8**, the electronic device **100** detects text input in step **801**. For example, as show in FIG. **5**A, the electronic device **100** displays text **505**, **507**, **509**, and **511** input through an input device **501** displayed on the touch screen **150** on a memo application **503**.

After the text input is detected, the electronic device **100** proceeds to step **803** and detects a formula included in the text. For example, the electronic device **100** detects a formula including a plurality of numerals and at least one operator. Herein, the electronic device **100** can verify whether there are data in a buffer memory which stores only a formula separately in input text.

After the formula included in the text is detected, the electronic device **100** proceeds to step **805** and calculates the formula. For example, as shown in FIG. **5**B, when input **521** for a "calculating" **523** displayed on the touch screen **150** is sensed, the electronic device **100** calculates the formula using a separate calculator application program. In another example, as shown in FIG. **5**B, when the input **521** for the "calculating" **523** displayed on the touch screen **150** is sensed, the electronic device **100** can process the formula using a calculation function included in the memo application **503**. In another example, as shown in FIG. **5**B, when a "=" is selected in the input device **501** displayed on the touch screen **150**, the electronic device **100** can calculate the formula using a separate calculator application program. In another example, as shown in FIG. **5**B, when the "=" is selected in the input device **501** displayed on the touch screen **150**, the electronic device **100** can calculate the formula using a calculation function included in the memo application **503**.

After the formula is calculated, the electronic device **100** proceeds to step **807** and displays the calculated result. For example, as shown in FIG. **5**C, the electronic device **100** displays a calculated result **531** together with the "=" **533** on the memo application program **533**. After the calculated result is displayed, the electronic device **100** proceeds to step **809** and verifies whether a region is set. If the region is not set, the electronic device **100** ends the algorithm of FIG. **8**.

When the region is set, the electronic device **100** proceeds to step **811** and verifies whether to perform second calculation for the calculated result in which the region is set. For example, as shown in FIG. **9**A, when a region **901** is set to the calculated result displayed on the touch screen **150**, the electronic device **100** verifies, as shown in FIG. **9**B, whether input for a "sum" **903** displayed on the touch screen **150** is sensed. In another example, as shown in FIG. **9**B, the electronic device **100** can verify whether a "+" and a "−" are selected in the input device **501** displayed on the touch screen **150**.

If the second calculation for the calculated result will not be performed, the electronic device **100** ends the algorithm of FIG. **8**. For example, as shown in FIG. **9**B, when the input for the "sum" **903** displayed through the touch screen **150** is not sensed, the electronic device **100** recognizes that the second calculation is not performed. In another example, as shown in FIG. **9**A, when the "+" and the "−" are not selected in the input device **501** displayed on the touch screen **150**, the electronic device **100** can recognize that the second calculation is not performed.

On the other hand, when the second operation for the calculated result will be performed, the electronic device **100** proceeds to step **813** and performs the second operation for the calculated result included in the region. For example, as shown in FIG. **9**B, when the input for the "sum" **903** displayed on the touch screen **150** is sensed, the electronic device **100** performs the second calculation using a separate calculator application. In another example, as shown in FIG. **9**B, when the input for the "sum" **903** displayed on the touch screen **150** is sensed, the electronic device **100** can perform the second calculation using a calculation function included in the memo application **503**.

After the second calculation for the calculated result is performed, the electronic device **100** proceeds to step **815** and displays the second calculation result. For example, as shown in FIG. **9**C, the electronic device **100** displays the second calculation result value **907** on the memo application **503**. Herein, the electronic device **100** can display values used for the second calculation in addition to the second calculation result value. Thereafter, the electronic device **100** ends the algorithm of FIG. **8**.

In certain embodiments of the present disclosure, the electronic device **100** performs the second calculation for a calculated result included in a region among calculated results. In other embodiments of the present disclosure, the electronic device **100** can calculate a formula included in a region in text.

It will be appreciated that embodiments of the present disclosure according to the claims and description in the specification can be realized in the form of hardware, software or a combination of hardware and software. Any such software can be stored in a non-transient computer readable storage medium. The non-transient computer readable storage medium stores one or more programs (software modules), the one or more programs comprising instructions, which when executed by one or more processors in an electronic device, cause the electronic device to perform a method of the present disclosure. Any such software can be stored in the form of volatile or non-volatile storage such as, for example, a storage device like a ROM, whether erasable or rewritable or not, or in the form of memory such as, for example, RAM, memory chips, device or integrated circuits or on an optically or magnetically readable medium such as, for example, a CD, DVD, magnetic disk or magnetic tape or the like. It will be appreciated that the storage devices and storage media are embodiments of machine-readable storage that are suitable for storing a program or programs comprising instructions that, when executed, implement embodiments of the present disclosure. Accordingly, embodiments provide a program comprising code for implementing apparatus or a method as claimed in any one of the claims of this specification and a machine-readable storage storing such a program. Still further, such programs can be conveyed electronically via any medium such as a communication signal carried over a wired or wireless connection and embodiments suitably encompass the same.

As described above, the electronic device has an advantage in that it is unnecessary for a user thereof to drive a separate calculator application program by calculating a formula included in text in an application program.

While the present disclosure has been particularly shown and described with reference to exemplary embodiments thereof, it will be understood by those skilled in the art that various changes in form and details may be made therein without departing from the spirit and scope of the present disclosure as defined by the appended claims.

What is claimed is:

1. A method in an electronic device, the method comprising:
- detecting a text;
- detecting at least one formula included in the detected text;
- displaying an icon for formula calculation after the at least one formula is detected;
- calculating the at least one formula when a selection for the icon is sensed; and
- displaying the calculated result.

2. The method of claim **1**, wherein the at least one formula includes a plurality of numerals and at least one operator.

3. The method of claim **1**, wherein the detecting the at least one formula comprises:
- verifying a first region for detecting the at least one formula in the text; and
- detecting the at least one formula included in the first region.

4. The method of claim **1**, wherein the detecting the at least one formula comprises detecting the at least one formula when input for the calculation of the at least one formula is sensed.

5. The method of claim **1**, wherein the calculating the at least one formula comprises calculating a formula included in a first region among the at least one formula.

6. The method of claim **1**, further comprising:
- verifying whether the calculated result includes a plurality of calculated result values after the calculated result is displayed;
- displaying an item for a second calculation when the calculated result includes the plurality of calculated result values;
- performing the second calculation for the plurality of calculated result values when a selection for the item is sensed; and
- displaying the second calculation result.

7. The method of claim **6**, wherein the second calculation includes at least one of a sum and an average.

8. The method of claim **6**, wherein the verification whether the calculated result includes the plurality of calculated result values comprises:
- verifying a second region, for verifying whether the calculated result includes the plurality of calculated result values, in the displayed calculated result; and
- verifying whether the calculated result included in the second region includes the plurality of calculated result values.

9. The method of claim **6**, wherein the performance of the second calculation comprises performing the second calculation for calculated result values included in the second region among the plurality of calculated result values.

10. An electronic device comprising:
- a touch screen
- at least one processor;
- at least one memory; and
- at least one program which is stored in the at least one memory and is configured to be executable by the at least one processor,
  - wherein the at least one program detects input text, detects at least one formula included in the detected text, controls the touch screen to display an item for formula calculation after the at least one formula is detected, calculates the at least one formula when a selection for the item is sensed, and displays the calculated result.

11. The electronic device of claim **10**, wherein the formula includes a plurality of numerals and at least one operator.

12. The electronic device of claim **10**, wherein the at least one processor verifies a first region for detecting the at least one formula in the text and detects the at least one formula included in the first region.

13. The electronic device of claim **10**, wherein the at least one processor detects at least the one formula when input for the calculation of the at least one formula is sensed.

14. The electronic device of claim **10**, wherein the at least one processor calculates a formula included in a first region among the at least one formula.

15. The electronic device of claim **10**, wherein the at least one processor further includes a program for verifying whether the calculated result includes a plurality of calculated result values after the calculated result is displayed, displaying an item for a second calculation when the calculated result includes the plurality of calculated result values, performing the second calculation for the plurality of

calculated result values when a selection for the item is sensed, and displaying the second calculation result.

16. The electronic device of claim **15**, wherein the second calculation includes at least one of a sum and an average.

17. The electronic device of claim **15**, wherein the at least one processor verifies a second region for verifying whether the calculated result includes the plurality of calculated result values in the displayed calculated result and verifies whether the calculated result included in the second region includes the plurality of calculated result values.

18. The electronic device of claim **15**, wherein the at least one processor performs the second calculation for calculated result values included in the second region among the plurality of calculated result values.

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